(16,918.)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1898.

No. 333.

WILLIAM WHEELER HUBBELL, APPELLANT,

vs.

THE UNITED STATES.

APPEAL FROM THE COURT OF CLAIMS.

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JUDD & DETWEILER, PRINTERS, WASHINGTON, D. C., JULY 1, 1898.

United States Court of Claims.

No. 13,793.—*Filed April* 19, 1883.—*J. R.*

WILLIAM WHEELER HUBBELL

against

THE UNITED STATES.

PETITION.

To the Honorable the Judges of the Court of Claims:

The petition of William Wheeler Hubbell, now a resident of Appomattox county, State of Virginia, late of Philadelphia, Pennsylvania, and Washington, D. C., respectfully represents:

That your petitioner is a citizen of the United States; born on March 4th, 1821, at Philadelphia, Pennsylvania; your petitioner is the first and original inventor of an "Improvement in Cartridges," for which letters-patent of the United States were granted to him in due form of law, and according to law, dated and issued the 18th day of February, A. D. 1879, vesting in him the exclusive right to make, vend, and use the same for seventeen years from the date thereof.

That the said invention is of the kind known as centre-primed enclosed ammunition or cartridges for fire-arms, or rifles, carbines, and Gatling guns for infantry and for cavalry service. That your petitioner was the first and original inventor of the centre-primed enclosed cartridge, essentially the same in principle, as early as February 8th, A. D. 1842, the first in the world, with a machine-gun to use the same, the original specification of which was filed by him in the Patent Office of the United States on April 13th, 1865, on which day he also applied for letters-patent of the United States for his invention of the cartridge, constructed with a copper or metallic case, the original invention in 1842 being constructed

with a paper case. Your petitioner had made said invention of enclosed centre-primed cartridge at and before February 8th, 1842, to wit: In the year 1841, when he was experimenting with and inventing breech-loading fire-arms. Your petitioner notified the ordnance departments of the navy and army that he had made the said invention in cartridges and fire-arms as early as January 30th, 1843, and in 1845, 1846, 1847, and petitioned the Congress of the United States in December, 1845, to make provision for their introduction and adoption in the public service. But at that early day the United States resisted all efforts to change the system of muzzle-loading arms into breech-loading with primed ammunition. After the war of the rebellion, and after your petitioner had filed his application for a patent, filed April 13, 1865, to wit, in or about the month of June, A. D. 1865, your petitioner informed in person Colonel Stephen V. Benet, at the Frankford arsenal, of which he was then in charge, of this centre-primed cartridge invention of your petitioner, for which he had applied for a patent, claiming for it superiority over the rim-primed cartridges the United States was then making and trying at the said Frankford arsenal at Philadelphia county under his charge, and where the United States made ammunition for small or fire-arms. Your petitioner prosecuted his said application to appeal without avail, and continuously and repeatedly renewed his applications for a patent, under the rules and reglations of the Patent Office, allowing a limited examination only under each fee paid into the Treasury of the United States, until his patent was finally allowed and issued as stated in this petition. And your petitioner shows that he used all possible diligence, and incurred great and unusual expense, as required by law, in procurring his said patent.

Prior to the issue of the patent, and pending the application therefor, your petitioner filed a model of his invention with the chief of ordnance of the United States, of which a record remains in the ordnance official archives of the United States, to wit, on or about the 30th of May, A. D. 1872.

It was an important part of the practical application of said invention when the enclosing case was made of metal instead of paper, that the anvil-plate to enclose the fulminate should also be made of the same or kindred metal, either copper or copper alloy, avoiding tin or other decomposable metal or material which might develop a voltaic action and destroy the powder charge. All which peculiarities were contained in

the original application, and successive applications, and the patent of your petitioner. Pending your petitioner's applications, the United States tried various devices with tin and other metals for cartridges, all of which failed, and after the filing of your petitioner's model in the ordnance office his invention was adopted in the public service in pursuance of an act of Congress relating to breech-loading fire-arms, approved in July, A. D. 1872.

The United States under these circumstances, well knowing that the said invention was your petitioner's, and that he was endeavoring to secure his rights by grant of letters patent, made and used his said invention, whereby the United States promised and agreed to pay him a just compensation for his invention when he should secure the same by patent therefor, and your petitioner agreed to the same as manifested by his filing said model of his invention for adoption.

When the said letters-patent were granted and issued your petitioner exhibited the same, and gave information thereof to the chief of ordnance of the United States, and fixed the just compensation or royalty-rate at two dollars per thousand for each and every thousand of the ammunition or cartrides containing your petitioner's patent invention. And the United States well knowing of your petitioner's said patent and of said royalty charge which was not disputed as to justness of amount continued to manufacture and used his said patent cartridge to the number of many millions, and still continues to manufacture and use the said patented invention of your petitioner. Whereby the United States promised and agreed to pay to your petitioner a just compensation for its manufacture and use of his patented invention of said cartridge, to wit, the sum of two dollars per thousand, and suggested to your petitioner to establish the same by suit, alleging that such was now the practice in relation to patented inventions used by the Government.

Wherefore your petitioner charges and claims that the United States on this implied contract is indebted to your petitioner at the rate of two dollars per thousand for each and every thousand of his said patented cartridge made or used by the United States since the grant of said patent, and your petitioner charges and claims that the United States has made or used about five millions annually of his said patented cartridges, or twenty-five millions of his said patented cartridges since the issue of his said patent.

Your petitioner prays for an account of the full and entire

number of the said cartridges made or used since the issue of his said patent, to be separately stated when ordered.

Your petitioner claims a just compensation for the use or making of his said patented cartridge, to wit, he claims the sum of fifty thousand dollars due to him on this behalf by the United States up to the filing of this petition. And he prays for judgment for all use or making of his patented invention by the United States up to the time of rendition of such judgment at the rate of two dollars per thousand, or up to the time of accounting or proof of such making or use by the United States.

And your petitioner has always borne true and faithful allegiance to the United States Government, and he has not in any way voluntarily aided, abetted, or giving encouragement to rebellion against the said Government.

WM. WHEELER HUBBELL.

COUNTY OF CAMPBELL, } *ss:*
State of Virginia. }

I, Thomas L. Arrington, a justice of the peace, in and for the county and State aforesaid, do certify: That William Wheeler Hubbell personally known to me, appeared before me this day, and being duly sworn, deposes and says, that no assignment or transfer of his aforesaid claim, or any part thereof, or any interest therein, has been made, and that he said claimant is justly entitled to the amount therein claimed from the United States after allowing all just credits and offsets, and that he believes the facts as stated in said petition are true.

WILLIAM WHEELER HUBBELL.

Sworn and subscribed to before me this, the eighteenth day April, 1883.

TH'S L. ARRINGTON, [SEAL.]
J. Peace.

[Endorsed:] Court of Claims, No. 13,793; Wm. Wheeler Hubbell *vs.* The United States; manuscript petition; filed April 19, 1883; J. R.; Concord Depot P. O., Campbell Co., Virginia.

IN THE COURT OF CLAIMS OF THE UNITED STATES.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES.
No. 13793.

AMENDMENT OF PETITION.

A manuscript petition having been filed in this case, and a reply of the Secretary of War received as to the numbers of cartridges made and used as inquired of under the orders of the Court, the petitioner amends his petition in detail as follows:

1st. That the United States has made and used of the "cup or inside anvil-pattern cartridge," in accordance with the invention of petitioner's patent and since the date thereof, the number of fourteen millions seven hundred and fourteen thousand and eighty-two cartridges, (14,714,082,) for which the United States is indebted to your petitioner, at the rate of two dollars per thousand, the sum of twenty-nine thousand four hundred and twenty-eight dollars and sixteen cents...$29,428 16

2d. That the United States within six years prior to the filing of the petition, and prior to the date of the patent, but subsequent to the date of application for the patent, made of the "cup" anvil pattern embracing your petitioner's patent invention, the number of five million three hundred thousand cartridges, of which there were used prior to the date of the patent the number of two million six hundred thousand, on which there is due to your petitioner, at the rate of two dollars per thousand, the sum of five thousand two hundred dollars, ($5,200.) And of said 5,300,000 cartridges there were on hand at the date of the patent and subsequently used the number of two million seven hundred thousand cartridges, on which there is due to your petitioner, at the rate of two dollars per thousand, the sum of five thousand four hundred dollars .....$5,400.

making together the sum of $10,600.

3d. That the United States since the date of the patent, has also further made and used up to the time of filing the petition, certain cartridges termed "reloading cartridges" containing your petitioner's patent invention to the number of three million eight hundred and sixty-six thousand three hundred

and fifty-two, (3,866,352,) on which there is due to your petitioner, at the rate of two dollars per thousand, the sum of seven thousand seven hundred and thirty-two dollars and seventy cents.....$7,732 70

4th. Making a total number of 23,880,434 cartridges, and a total sum due to your petitioner up to the time of filing his petition of forty-seven thousand seven hundred and sixty dollars and eighty-six cents.....$47,760 86

For which amount he prays judgment.

WM. WHEELER HUBBELL.

COUNTY OF CAMPBELL, } ss:
State of Virginia, }

On this the seventeenth day of May, A. D. 1883, before me a justice of the peace in and for the county and State aforesaid, came William Wheeler Hubbell, personally known to me, who, being duly sworn, says that he verily believes the United States is justly indebted to him in the foregoing sum claimed, free and clear of all credits and offsets, under the said patent for cartridges, and that he is the sole owner of said claim which amounts to the sum of $47,760.86 as stated in this his amendment of petition.

WM. WHEELER HUBBELL.

Sworn and subscribed to before me this the 17th day of May, 1883.

TH'S L. ARRINGTON, *J. P.* [SEAL.]

[Endorsed:] Court of Claims, No. 13793; Wm. Wheeler Hubbell *versus* The United States; let the amended petition be filed—W. A. R., May 18, 1883; amendment of petition in accord with reply of Secretary of War; petitioner moves for allowance; filed May 18, 1883—J. R.; Wm. Wheeler Hubbell.

IN THE COURT OF CLAIMS OF THE UNITED STATES.

WM. WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13,793.

ADDITIONAL AMENDMENT OF PETITION.

The Honorable the Secretary of War having supplemented his reply to the question Fourth of the call of the Court of April 26th, 1883, giving additional numbers of cartridges reconstructed, with numbers of primers made or used for such reconstruction and reloading of cartridges for repeated use, your petitioner claims that the United States, defendant, has further made for use, and used as required, for the reconstruction of cartridges for repeated use with metallic cases, the priming devices and principle of your petitioner's said patented invention, to the number of 9,373,700, of which 5,507,348 are in addition to the 3,866,352 before reported as completed reloading cartridges; and for which the United States agreed to pay on the implied contract set out in the petition. And thereupon your petitioner claims at the rate of two dollars per thousand the additional sum of $11,014.69 on the said 5,507,348 made or used for reconstruction of the cases into cartridges, making the total sum of $58,775.55.

Your petitioner, however, waives his claim to the $5,200 on the 2,600,000 cartridges both made *and used* before the date of issue of his patent, and deducts the same, leaving the sum of $53,575.55 due to your petitioner for cartridges made or used by the United States, defendant, since the issue of his patent, and for which he prays judgment in the sum—fifty-three thousand five hundred and seventy-five dollars and fifty-five cents ($53,575.55.)

2d. On page 3 of the original, the words "July, 1872" are amended to read "6th June, 1872, and adopted about May, 1873," and thereafter.

WM. WHEELER HUBBELL.

DISTRICT OF COLUMBIA, } ss:
County of Washington. }

On this the twenty-fifth of July, A. D. 1883, before the undersigned, John Randolph, Ass't Cl'k C. C., came Wm. Wheeler Hubbell, and being duly sworn says that he ver-

ily believes the United States to be justly indebted to him in the additional sum of $11,014.96, before claimed, making, after deducting the $5,200 waived, the sum of $53,575.55 justly due him as claimed, after deducting all just credits and offsets.

WM. WHEELER HUBBELL.

Subscribed and sworn to before me, this 25th day of July, 1883.

[Court of Claims' Seal.]

JOHN RANDOLPH,
Ass't Cl'k C't Claims.

Endorsed: In the Court of Claims of the United States. Wm. Wheeler Hubbell *vs.* The United States, No. 13,793. Additional amendment of petition in accordance with the supplemental reply of the Hon. Secretary of War, &c. Plaintiff moves for allowance. Wm. Wheeler Hubbell. Allowed July 25, 1883. W. A. R., Judge, &c. Filed July 25, 1883.—J. R.

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United States Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES.

No. 13793. Filed October 2, 1884.—J. R.

Amendment of Petition.

Your petitioner, in amendment of his petition, and especially of that portion on page 3, from lines 22 to 33 inclusive, avers:

That the Chief of Ordnance of the United States and his assistants, and the officers and employees of the United States in the War Department and at the Frankford arsenal, duly authorized officers and employees of the United States to make the ammunition for the service of the United States, to wit: Stephen V. Benet, Chief of Ordnance, and Major Whittemore and Major Lyford, superintendents of the Frankford arsenal, belonging to the United States, and workmen employed for and paid by the United States, in making the said patent ammunition of your petitioner for the use of the Army of the United States, all as authorized by law, and well knowing of your petitioner's said patent and of said royalty charge, which was not disputed as to justness of amount, continued to manufacture and used his said patent cartridge to the number of many millions, and still continue to manufacture and use the said patented invention of your petitioner, whereby the said authorized officers and employees of the United States and the defendant promised and agreed to pay to your petitioner a just compensation for the manufacture and use of his patented invention of said cartridge, to wit: the sum of two dollars per thousand, and suggested to your petitioner to establish the same by suit, alleging that such was now the practice in relation to patented inventions used by the Government; and the duly authorized soldiers and officers of the United States, under the orders and directions of the proper officers, to wit: the Secretary of War and other officers in the service of the United States, did use and have for use in the Army service of the United States your petitioner's aforesaid patented invention of cartridge, manufactured as aforesaid at the Frankford arsenal, which is located at Frankford, Pennsylvania, by authority of the United States, as its arsenal or place of such manufacture.

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WM. WHEELER HUBBELL.

Sworn to and subscribed before me this second day of October, A. D. 1884.

[Seal of the Court of Claims.]

JOHN RANDOLPH,
Assistant Clerk Court of Claims.

11 Court of Claims.

WM. WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

Amendment of Petition.

The claimant, in view of the reply of the Secretary of War, filed December 8th, 1884, to the order of the court of November 3d, 1884, amends his petition as follows:

That the defendant, by its proper authorized officers and employees, made and used the number of 3,866,352 "reloading primers" in addition to the 5,507,348 before stated in his petition, making the number of 9,373,700 reloading primers with anvil, case, and fulminate for use, embracing claimant's patented invention, up to March 31st, 1883, in addition to the 3,866,352 completed reloading cartridges up to said March 31st.

That defendant, since March 31st, 1883, has further made and used of claimant's said patented invention as follows:

Of "cup-anvil cartridges" the number of 64,560.

Of "reloading cartridges" the number of 12,696,936.

Of "reloading primers," to reload cartridge cases, the number of 9,342,275.

All under the implied contract as before set forth in claimant's petition.

Making in all due to the claimant as follows:

For "cup-anvil cartridges," 17,478,642 in number, made and used since the date of claimant's said patent up to October
12 31st, 1884, at two dollars per thousand, the sum of $34,957.28.

For "reloading cartridges," 16,563,288 in number, made and used since the date of claimant's said patent up to October 31st, 1884, at two dollars per thousand, the sum of $33,126.57.

For "reloading primers" to reload cartridge cases, 18,715,975, made and used since the date of claimant's patent up to October 31st, 1884, at two dollars per thousand, the sum of $37,341.95.

Making a sum total of $105,515.80 due to claimant up to October 31st, 1884, under the implied contract set forth.

And the claimant thereupon prays judgment in this suit in the sum of one hundred and five thousand five hundred and fifteen dollars and eighty cents ($105,515.80).

WM. WHEELER HUBBELL.

COUNTY OF CAMPBELL, } *ss:*
State of Virginia, }

Sworn to and subscribed before me the subscriber, a justice of the peace in and for the said county and State, this the eleventh day of December, A. D. 1884.

THO. L. ARRINGTON, *J. P.*

(Endorsed:) Court of Claims. No. 13793. Wm. Wheeler Hubbell *vs.* The United States. Amendment of petition. Claimant moves for allowance. Wm. Wheeler Hubbell, claimant. Allowed Dec. 15, 1884. W. A. R.

13 In the Court of Claims of the United States, December Term, A. D. 1882.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

And now comes the Attorney General, on behalf of the United States, and answering the petition of the claimant herein, denies each and every allegation therein contained; and asks judgment that the petition be dismissed.

And as to so much of the said petition as avers that the said claimant has at all times borne true faith and allegiance to the Government of the United States, and has not in any way voluntarily aided, abetted, or given encouragement to rebellion against the said Government, the Attorney General, in pursuance of the statute in such case provided, denies the said allegations, and asks judgment accordingly.

THOMAS SIMONS,
Assistant Attorney General.

14 [Endorsed:] No. —. —— —— *vs.* The United States. General traverse. —— ——, assistant attorney general.

15 Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793. Substatement.

On the hearing of this cause and suggestion of the court in deference to defendant's counsel, the claimant in open court, without prejudice as to any of his rights, waived in this suit so much of the prayer of his amendment of petition, filed and allowed December 15, 1885 (pages 119, 120), as relates to cartridges and cartridge primers made subsequent to March 31, 1883, preceding a few days the filing of his original petition on April 19, 1883, reserving to himself the right of applying for compensation for those made since March 31, 1883, hereafter, under a new petition or otherwise, leaving at this time or in this suit, under the original petition and amendments, the cartridges and cartridge primers officially reported as made and used or for use between the issue of the patent February 18, 1879, and March 31, 1883, for payment which claimant states on the evidence as follows:

"Cup-anvil" cartridges made (page 67).....	14,714,082
"Cup-anvil" cartridges used (before made), page 67...	2,700,000
	17,414,082
"Reloading" cartridges made (page 67–69).....	3,866,352
"Reloading primers" for cartridges made (page 79, 210)	9,373,700

Computation of amount, 17,414,082 at $2 per thousand,	$34,828.16+
3,866,352 at $2 per thousand,	7,732.70+
9,373,700 at $2 per thousand,	18,747.40+
	$61,308.26

The total sum from February 18, 1879, to March 31, 1883, due claimant, as claimed, amounting to the sum of $61,308.26.

WM. WHEELER HUBBELL, *Claimant.*

(Endorsed:) Court of Claims. No. 13793. Filed April 20, 1885. J. R.

16 Court of Claims.

WILLIAM WHEELER HUBBELL
v.
THE UNITED STATES. } No. 13793.

Findings of Fact.

This case having been heard before the Court of Claims, the court, upon the evidence, finds the facts to be as follows:

I.

April 13, 1865, the claimant filed in the caveat archives of the Patent Office of the United States a specification and drawings alleged by him to describe "a gun to load and fire with great rapidity and effect." This caveat was prepared the 8th day of February, 1842. The gun described in the caveat was a breech-loading revolving gun, requiring the use of cartridges. The claim was for the invention of the gun, and also "the cartridge as set forth and firing it by means of a drill." In this cartridge a paper cylinder was employed in which the powder was inclosed with the ball above or before it; in the back or lower part of the cylinder was a chamber coated with varnish, filled with fulminate, and having an end covering to it; the cartridge was to be fired by a drill. No method of communication from the fulminate to the powder was provided, nor any mention made of an anvil.

II.

The same day, April 13, 1865, claimant also filed in the United States Patent Office, an application for letters patent upon what he described as a new and useful improvement in primed cartridges.

May 15, 1865, the letters patent were refused on the ground that the claim had been anticipated.

The application was then amended, and again refused, August 10, 1865, for lack of novelty.

The claimant appealed from this decision to the board of appeal or examiner-in-chief, and on November 17, 1865, two examiners-in-chief affirmed the decision, refusing the application.

The important parts of the invention as described in the specifications and the drawings annexed to them, filed April 13, 1865, with application, are as follows:

The invention is called a "new and useful improvement in primed cartridges."

The nature of the invention consists in taking the ordinary copper-flanged primed-cartridge case, which has a projecting flange on the rear and immediately outside of a level rear base or plate and outside of a cylindrical body, such flange connecting the cylindrical body with such rear base plate and adapted to arms having a flange recess at the rear of the charging chamber. And I dispense with the fulminate in such rim, and I compress and make thinner the center of the rear base plate to about half the surrounding thickness, and for a diameter or size of about a quarter of an
17 inch, and inside of the shell or plate, forming thereby a circular recess or chamber in the base or plate inside to hold fulminate and to present a thin striking face to a striker located in the rear of the shell or cartridge, and I insert inside of this shell, with its rim or edge extending into the rim of the shell, and firmly secured by such rim, a copper plate or anvil, perforated with one or more small vent holes in the anvil part opposite such thin or reduced center to inclose the fulminate, receive the blow of the striker as an anvil as it strikes onto the thin or reduced central part of the rear plate or base of the shell, and drives it forward where struck with the fulminate against the curved base of the center concave of the plate which surrounds a central hole or vent in it to form a base of resistance to explode it against, and to admit the fire directly forward through the center of the gunpowder of the cartridge. This is the best form of applying the invention, though two or more small holes to vent may be used, with the metal of the plate solid immediately opposite the center.

The advantages of this cartridge were described by the claimant in the said specifications, as follows:

The flange being filled up solid prevents it from stripping in extracting the shell. The fulminate being in the center (and not within the outer flange) makes it safer from accidental explosion. The concave plate secured by the outer rim, and is held by the groove in the gun, makes a firm base of resistance to the action of the striker to explode the fulminate. The central issue of the fire forward through the gunpowder ignites it uniformly and most quickly.

The applicant's claim was thus made:

What I claim as my invention is: Dispensing with the fulminate in the hollow rim of the ordinary cartridge case, having its rim

projecting around the rear flat base and beyond the cylindrical body of the shell, and then reducing the thickness of this rear plate or base in the center inside, and inclosing the fulminate in, and opposite this thinned center or recess by means of a perforated plate or anvil, held securely by its rim entering the hollow flange outside of the cylinder of the shell, to convert it into a center primed cartridge adapted to arms with a flange recess around the rear end of the charging chamber, such as those in which the shell was before used, or others similar, or adapting the striker to it, substantially as described.

In his appeal from the decision of the primary examiner the claimant alleged the following essential features which must necessarily all exist to develop the function of a proper explosion of the cartridge, namely:

1. A thinned central rear sufficiently and only large enough to present an annular striking face around the center hole of the anvil plate and opposite the central face of the anvil plate.

2. An anvil plate held by the surrounding projecting flange and flat with the rear plate up to the edge of the thinned part of such plate, and with a curved concave opposite the thinned part, and only opposite the thinned part, surrounding a central vent hole extending forward through the plate.

The construction of the anvil plate is peculiar and the construction of the thinned rear base is peculiar; both may have been separately known before, but they were never proportioned to each other and brought together to act in unison for the common purpose of producing a quick and certain ignition of cartridge and making it safe to carry; by combining an easy yielding rear face with a solid resisting anvil face properly presented and supported, and a small amount of fulminate with large ventage so as not to blow out or displace the anvil plate, and keep the base solid for easy extraction of the shell.

III.

The claimant, upon January 23, 1872, filed in the United States Patent Office an application for letters patent upon improved breach-loading metallic cartridges. After refusal and amendment letters patent were issued to him for the invention claimed by him in the following form:

I claim as my invention the within-described improved fixed ammunition for breech-loading infantry arms, consisting of an enlarged metallic case containing a charge of powder, an elongated solid and flat-based paper carrier fitting closely within said case, and carrying a smooth, solid, elongated, rearwardly tapering flat-based, subcaliber, leaden bullet, held and partially inclosed by the front end of the said carrier.

18 On this application a patent was issued for a subcaliber bullet with bullet paper-carrier.

The claimant filed, April 25, 1872, in the United States Patent Office, an application for a patent for "an improvement in the construction of primed metallic ammunition for breech-loading fire-

arms." This application was amended and refused. The specification as amended was as follows:

I, ——, have invented an improvement in the construction of primed metallic ammunition for breech-loading fire-arms, of which the following is a specification:

My invention relates to the construction of the base or rear end of the cartridge or metallic case, immediately adjacent to the rear of the powder chamber, to prevent the fulminate and powder, either or both, from decomposition by galvanic action or sweating, and to prevent the paper disk from burning, and prevent the metallic case at the flange from bursting; and to construct the cartridges with uniform similarity, and cheaper than heretofore, by means of a circular centrally perforated paper disk carrying the fulminate in its central perforation and secured between a circular metal plate similar in galvanic nature to the metal of the case, with an anvil or bridge piece in this circular metal plate over the fulminate, and one or two holes punched through it at one or both sides of the anvil face to admit the fire to the powder, and secured firm down on the paper disk by the pinched-in sides of the case over the middle plate to insure resistance to the fulminate.

Referring to drawings annexed to it, the specification proceeds to describe a metal case, to contain the powder charge, and the bullet or shot, or only the powder if desired. A circular paper disk about one-tenth of an inch thick fits tightly inside of the metal case against the metal base of the case, this paper disk to be perforated entirely through at its center, forming a chamber of uniform diameter open at both sides alike, and of about one-eighth of an inch in diameter. Into this chamber is put the fulminate when damp, coated on both sides with a solution of shellac and then placed into the case. Over this is placed a circular plate of the same kind of metal as the case or similar in galvanic nature so as to prevent galvanic action or decomposition. Two holes through which the fire from the fulminate reaches the powder are punched through this plate, leaving an anvil piece over the fulminate. The specification then proceeds:

Owing to this construction of a paper disk, between a metal plate and the base of the case, a much thinner body of paper, and a shorter metal case, suffices to secure, preserve, and explode the fulminate than is used when paper alone is employed in the metal base or case. There is also greater certainty of exploding the fulminate, and the paper is pressed more mechanically and tightly at the edges against the case, to exclude the gas and fire, and prevent the paper from burning and the shell case from bursting, while galvanic action and decomposition are also prevented; and sweating does not destroy the fulminate. The paper disk being perforated clear through, enables either side to be put next to the metal base and makes equally sure fire. Paper is the only material that will answer for this disk.

I am aware that a body of paper with a concave recess in the rear, containing fulminate, and sufficiently thick to enable the paper in a measure to resist the blow to explode the fulminate, has been suggested before this invention of mine, but it requires a longer

case than mine, and is not so certain to explode; and a paper disk alone so thin as mine, and taking up so little space, will not give sufficient resistance, nor will any paper disk when perforated through like mine, so as to apply either side next to the base, explode the fulminate without the metal plate or anvil. I am also aware that an anvil plate over a combustible-primed wad has also been suggested, but this does not exclude the gas from beneath the plate, at the edges or weak parts of the case, which my invention does accomplish.

But what I claim is—

The construction of an improved breech-loading metallic-primed cartridge case, consisting of circular metallic anvil perforated and secured by a bite of the case of the same metal, immediately in front of a circular paper disk centrally perforated through and carrying the fulminate in the central perforation, and tightly inclosed against the sides of the case at the flange, and between the metallic base and anvil plate, exclusively of the same metal, to avoid sweating, bursting, galvanic action, and to keep and present the fulminate and charge in the most serviceable manner, as described.

19 IV.

Another application, filed December 28, 1878, resulted in the issue to the claimant of letters patent No. 212,313, for an alleged new and useful improvement in cartridges. These letters were issued February 18, 1879. The right and title to them remains in the claimant. The amended specification upon which the letters were issued contains the following description of the invention:

UNITED STATES PATENT OFFICE.

WILLIAM W. HUBBELL, of Washington, District of Columbia.

Improvement in Cartridges.

Specification forming part of Letters Patent No. 212,313, dated February 18, 1879. Application filed December 28, 1878.

To all whom it may concern:

Be it known that I, William Wheeler Hubbell, of Washington and District of Columbia, have invented an improved metallic cartridge, and I do hereby declare that the following is a full, clear, and exact description thereof:

My invention relates to the peculiar construction of a circular metallic perforated plate, with the circular fulminate-carrier and solid fire-tight metallic case and head in one piece, as will be hereinafter more fully set forth and described.

Referring to drawings annexed to it the specifications proceed to describe the cartridge substantially as follows:

A cylindrical metallic-cartridge case or shell, with solid rear end in one piece therewith, both fire-tight; open only at the front end

to be primed and loaded at this front opening. Above and upon this solid rear end is placed a circular disk of paper, or any suitable substance, perforated through the center for the reception of the fulminate in this perforation or chamber. Above and upon this disk is placed a circular metallic plate closely fitting inside the case or shell; this plate is held in place by contracting or pinching the case or shell, which forces the plate down upon the disk and makes a tight joint around the edge of the plate. The plate has two perforations, one on each side of a center line drawn through its axis, sufficient space being left between the perforations to form the bar, which is of a breadth nearly equal to the perforation in the paper disk immediately over which it rests; above this metal plate is the powder chamber and above that the bullet. The specification further sets forth that the paper disk may be dispensed with by recessing or forming the fulminate chamber in the metal of the circular plate with a central anvil bar over the recess and a perforation on each side of the bar. The specification thus concludes:

The central anvil affords a firm resistance to a central striker acting on the center of the base, and compressing the fulminate to ignite it with certainty. The two side vents diffuse the fire into the base of the charge of powder, and its instant explosion presses back the circular anvil plate, and prevents it from being blown out in the barrel, the charge being consumed from the base forward without reaction of the fire or waste of the powder.

The distinguishing feature of my invention is the organized construction to carry into complete effect the expressed principles of operation of the fulminate of mercury or detonating powder and the powder charge. In this organization the fulminate, although the superior explosive force, is contracted into a diminished or small central chamber and fills it. The flange and head of the metallic case are solid, all in one piece. This chamber at its sides or outer extreme edges communicates directly and exclusively with the powder charge, so that the explosive force of the fulminate is not allowed to expand under a larger area of the anvil plate and blow it out, but is compelled to diffuse its explosive force, not in a central stream, but in a diffused body into the base of the powder charge. To effect this the central anvil piece has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer sides of this fulminate for two purposes. One is to diffuse the fire from this center most thoroughly. The other is to have an unperforated anvil over and against the fulminate, as it rests solid in its chamber, to receive the central blow of a striker and obtain complete resistance by the anvil bar, and yet have free escapement for the explosive force at once from beneath the anvil plate without any chamber or space for it to expand into under the plate. This insures a certain ignition, security of the anvil plate to keep its position, and a complete combustion of the powder charge from the base forward, as it impels the bullet out of the gun.

Having thus described my invention, what I claim as new and desire to secure by letters patent, is—

In the bottom of a solid metallic flange cartridge case or shell, the combination of a circular base inclosing a central chamber of fulminate and an anvil over the fulminate, provided with two or more openings, whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge, substantially as described.

V.

The officers of the United States Army began in 1864 experiments for the manufacture of center-fire cartridges which led up to the "cup-anvil" cartridge adopted in 1868 and the reloading cartridge.

Prior to 1864 metallic, so called, "rim-fire" cartridges were used; in these cartridges the fulminate was contained in a hollow flange or rim around the base of the cartridge, and it was exploded by a blow from the hammer of the gun upon the exterior edge of this flange or rim. Among other patterns there were made and fired by said officers the following different kinds of center-fire cartridges:

In December, 1864, some ten or fifteen cartridges thus described: Interior, center-primed cartridges; priming (or fulminate) being held in place against the base or rear of the shell by a circular metal disk compressed by the walls of the shell; in the disk were two holes at the extremities of a diameter of the fulminate through which fire from the fulminate was communicated to the black-powder chamber of the shell; the entire area of the holes opened into the fulminate chamber and the portion of the metal disk between the holes served as an anvil to resist the blow of the hammer or firing pin; between the hammer and the anvil was placed the fulminate.

The fulminate in this cartridge was carried in an exterior bulb or chamber in the rear of the center of the base of the cartridge; this method of loading the fulminate was abandoned.

About the spring of 1865 the said officers manufactured and fired cartridges of the following description:

A center-primed cartridge, the priming of fulminate in a circular depression in the center of the base of the shell held in place by a circular piece of metal pressed down over it; fire to the powder charge communicated through two holes at the extremities of a diameter of the depression or pocket in the base of the shell, the entire area of these holes opening into the pocket and the portion of the metal between the holes serving as an anvil to resist the blow of the firing pin or hammer.

The Government continued the use of a center fulminate chamber having above it a disk with central anvil and two vents to the black-powder chamber, until the development, in 1868, of the cup-anvil cartridge, in which a cup was substituted for a single disk or for the combination of two disks. The cup is an improvement upon the disk or disks, in that a disk from its form is apt to be turned or misplaced in insertion, or loosened by blows from the striker, and must be fastened by crimping the walls of the shell near the flange where the walls are thickest; while a cup has from its
21 form greater rigidity as an anvil, its walls prevent it from turning while being inserted in the shell, and admit of its

being crimped in place where the walls are thinner. Being in effect a hollow cylinder it occupies less powder space in the shell for equal depth of cup and thickness of disk.

VI.

The "cup-anvil" cartridge is one of those alleged to be covered by claimant's patent. It is a center-primed cartridge, metallic case or shell, with a rim around the rear or closed end of the cartridge. The priming or fulminate is contained in a circular pocket in the exterior of the base of a metal cup; that is, into a cartridge shell, and resting upon its base is put a metallic cup with its mouth toward the black-powder chamber; the bottom of this cup projects upwards from the circumference towards the center, and the cup is forced down upon the solid base of the cartridge case or shell, and is held there firmly by crimping the walls of the case or shell over the edge of the cup at its open end. A circular pocket appears therefore in the exterior of the base of this cup and in this pocket, and between the cup and the closed end of the cartridge case or shell is placed the priming or fulminate. Fire is communicated from the fulminate to the black powder through two holes in the bottom of the cup at the extremities of a diameter of the said depression or pocket. The whole area of the apertures is over the fulminate chamber free to receive the flame, and their inner edges do not nearly coincide with the outer edge of the fulminate chamber. The portion of the top of the pocket or bottom of the cup between the two holes serves as the anvil to resist the blow of the hammer or firing pin.

This cartridge was adopted by the Government in 1868, and has since been continuously manufactured and used by it.

The "reloading" cartridge is another of those alleged to be covered by claimant's patent. This cartridge is a hollow metallic shell, rimmed around the base with a pocket in the exterior of the center of the base; through the center of the top of this pocket, supposing the cartridge to be stood upon its base or closed end, is pierced a single aperture or hole to carry the fulminate flame to the black-powder chamber. This cartridge contains only the black powder and the bullet. Any one of several different kinds of primers may be used in it; the one used by the United States and alleged to infringe claimant's rights is a circular metallic cup into which is put the fulminate; above this is fastened a disk or cover having a groove on its upper side, being the diameter of the circle; at each end of this groove a small piece or notch is cut out of it; through the holes thus formed the flame from the fulminate escapes; if this primer is placed in the chamber of the reloading cartridge, with the closed end of the cup outwards and the grooved end against the top of the chamber, the flame from the fulminate when exploded would pass through these holes or notches, thence along the groove to the central aperture in the cartridge case or shell, thence to the black-powder chamber through this single aperture. The entire area of each of the holes or notches in the disk is over the fulminate chamber; and the portion of the disk between the holes is the anvil.

22 VII.

The claimant, in July, 1872, notified the Chief of Ordnance of the United States of his letters patent, issued in April of that year, and asked that the cartridge therein described be tested. March 22, 1879, claimant notified the Secretary of War of his patent granted February 18, 1879, and asked allowance for royalty on future manufactures of the cartridge thus protected.

From March 1, 1879, to March 31, 1883, the United States manufactured 14,714,082 cup-anvil cartridges, and after February 18, 1879, used 2,700,000 theretofore made.

From February, 1879, to March 31, 1883, the United States manufactured 3,866,352 reloading cartridges, and 9,373,700 of the primers described in finding VI were manufactured from 1883.

VIII.

The cost of manufacturing the "cup-anvil" cartridge is $26 per thousand, the cost of manufacturing the reloading cartridge is $30 per thousand; a fair royalty would be 5 per cent. of the cost.

Conclusion of Law.

Upon the foregoing findings of fact, the court decides, as conclusion of law, that the petition be dismissed.

Opinion.

DAVIS, *J.*, delivered the opinion of the court:

The claimant seeks in this action, upon an implied contract (*McKeever v. The United States*, 14 C. Cls., 196; 18 C. Cls., 757; *Burns v. The United States*, 12 Wall., 246), to recover compensation for the manufacture and use by the United States Army of cartridges alleged to be an infringement of his patent issued in 1879.

As it is admitted that the Government cartridges were manufactured and used prior to the claimant's application for the patent in question, it would naturally be inferred either that the invention was not novel or that the Government cartridge does not infringe the rights secured by the letters patent. The claimant seeks to avoid this inference by showing that, although his rights first became enforceable upon the issue of the patent, he in fact is the first inventor, and he puts in evidence a number of applications made by him prior to 1879, as tending to establish this.

In an action for infringement, where the question of priority is raised, the claimant may go into such history of his efforts and achievements in the art as tend to show that he was in fact the first inventor of something afterwards patented by him, but as the letters patent form the basis of the action, an examination of the claimant's moral claims to priority is useless, unless he has protected his rights in the manner prescribed by law.

The claimant conducted his own cause before this court, and both

in his brief and in argument made broad claims as to his inventions in metallic cartridges, showing that for over forty years
23 he labored diligently for the improvement of fire-arms and ammunition, and that he early foresaw the necessity of substituting for the muzzle-loader with loose ammunition a safer and more efficient arm for warfare to be breech-loading with cartridges; this, however, is beside the issue, as his legal rights are shown, defined, and limited by his patents only.

The distinctive features of the patent of 1879 are set forth by the claimant as follows: "The fulminate (or priming), although the superior explosive force is contracted into a diminished or small central chamber and fills it. The flange and head of the metallic case are solid, all in one piece. This chamber at its sides or outer extreme edges communicates directly and exclusively with the powder charge," so that the fulminate will diffuse its explosive force; "to effect this the central anvil piece has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer edges of this fulminate" for the purpose of diffusing the fire and retaining the central anvil. Claimed as new is "the combination of a circular base inclosing a central chamber of fulminate and an anvil over the fulminate, provided with two or more openings whose inner edges nearly coincide with the edges of the central chamber of fulminate."

Stated in another way, the distinguishing feature of the combination is a disk within a metallic cartridge, having an aperture in the center to receive the priming; over that a metallic disc having two vents drilled through it, by which the flame from the priming may reach the black powder placed immediately over this second disk, these vents to be so arranged that their inner edges shall nearly coincide with the wall of the fulminate chamber, that is, so that a portion only of their area shall open into that chamber and be free for the passage of the flame. This arrangement of the vents seems to obstruct the free escape of the flame and gas generated by the priming; the claimant, however, evidently deemed this position of the apertures material, possibly because it gives a larger diameter to the anvil.

The patent of 1879 is, therefore, for a combination made up of the circular base containing the fulminate, the anvil over it, with the apertures or vents placed as shown, and the position of these vents is material to the combination as described and claimed.

Turning now to the claimant's prior applications, through which he seeks to prove an early invention of the combination patented in 1879, we can lay aside as on their face irrelevant the applications and patent of 1872, as well as the caveat of 1842, and need to consider only the application of 1865. The invention described in this application consisted of the combination of a perforated anvil protruding upward into the shell, the edges held by insertion into the hollow flange or rim surrounding the base of the cartridge, with the closed end of the cartridge made thinner opposite the priming, which was contained in the chamber formed by the protrusion of the anvil upwards into the shell and the area cut out of the base.

In his specification the inventor stated that he preferred a central vent through the anvil, but suggested the possibility of using two or more vents, without, however, defining their position. This suggestion he abandoned upon appeal in the Patent Office, and relied upon the single central vent, laying stress upon the combination of the thinned base, the construction of the anvil plate and the central vent, all acting together to produce a safe and
24 quick explosion with a small amount of priming and large ventage. The claim of 1865 does not aid the patent of 1879, as it lacks the latter's distinguishing characteristics. In 1865 the claimant laid stress upon the combination of the thinned base with the anvil having a central vent, saying, "the central issue of the fire through the gunpowder ignites it uniformly and most quickly," while in 1878 he provided two apertures, as widely separated as possible, "so (to use the claimant's words) that the explosive force of the fulminate is not allowed to expand, * * * but is compelled to diffuse its explosive force not in a central stream, but in a diffused body. To effect this the central anvil piece has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer sides of this fulminate * * * to diffuse the fire * * * and to have an unperforated anvil."

In 1865, therefore, the claimant aimed at quick ignition through concentrated fire, while in 1878 he sought the same result through diffusion of the flame. There are other differences between the application of 1865 and that of 1878, on which the patent in question was issued, which it is not necessary now to consider more fully, but which support our conclusion that the specification of 1865 does not cover the invention patented in 1874.

The Government cartridges alleged to infringe the claimant's rights are of two kinds, called the "reloading cartridge," and the "cup-anvil cartridge." The "reloading cartridge" is a solid flange metallic cartridge with a chamber indented from without into the center of the closed end or base to receive the primer; at the top of this chamber is a single aperture to convey the flame from the fulminate to the black-powder chamber immediately above. In this cartridge there are not two apertures, there is not a central or any anvil, there is no central fulminate chamber; in fact it is merely a metallic shell intended to hold powder and ball only, with a chamber in its base for the reception of a primer containing anvil and fulminate. The primer is entirely distinct and separate from the cartridge, nor is it necessary to use any particular kind of primer; the one complained of in this case consists of a circular metallic cup, into which is put the fulminate, and above it is fastened a metallic disk acting as an anvil; at either extremity of a diameter of this anvil is cut a notch or hole which shows its entire area into the priming chamber. When this primer is forced into the chamber in the base of the "reloading cartridge" the two vents come against the top of the chamber, and are closed by it; therefore a groove is made along the diameter of the top of the disk extending from one of the notches or vents to the other to allow the passage of the flame. When this primer is in its place in the car-

tridge, and the fulminate is exploded, the flame rushes through the notches or vents, and meeting the solid base of the shell follows the groove to the single central aperture through which it reaches the black powder in a single stream. Neither the combination of this shell and primer nor the combination distinguishing either the shell or primer singly is covered by the claimant's patent.

The "cup-anvil" cartridge is at first glance much more like the claimant's cartridge than the "reloader." It is a metallic solid flange shell, into which is placed a metallic cup, resting on the closed end or base of the cartridge. The mouth of this cup faces upwards towards the black-powder chamber or open end of the shell, and it is firmly held in place by a crimp in the circumference of the shell just above its upper edge. The bottom of this cup projects upwards from the circumference towards the center, and in the chamber thus formed between the bottom of the cup and the closed end or base of the cartridge, is placed the fulminate. At either end of a diameter of the cup is drilled a hole, whose entire area opens in upon the priming and is free to receive the flame; the inner edges of these vents do not, therefore, "nearly coincide" with the wall of the chamber; on the contrary it is their outer edges which are nearest to it, and thus an important element of the claimant's combination is absent. (*Vance v. Campbell*, 1 Black, 427; *Case v. Brown*, 2 Wallace, 325 and 327; *Schumacher v. Cornell*, 96 U. S., 554.)

Prior to 1864 the "rim-fire" metallic cartridge was used in the army, but in that year experiments were begun for the perfection of the center-fire cartridge, and among other models the Government offices manufactured and fired a cartridge of which the following were the distinctive features: The fulminate was inclosed in a central chamber protruding outward from the base of the shell; over this was a metal disk held in place by the walls of the shell; at either extremity of a diameter of this disk was a hole exposing its entire area for the free passage to the black powder of the flame from the fulminate. The exterior bulb or chamber was abandoned; but the other distinguishing features were in effect retained and improved until they developed, in 1868, the cup-anvil service cartridge.

This cartridge of 1864 shows a central fulminate chamber with a disk above it, of which the center is the anvil, and through this disk are drilled two vents. Another cartridge made by the Government about the spring of 1865 shows the same combination except that the priming chamber is formed by a circular depression in the base of the cartridge instead of an exterior protrusion or bulb. If then the use of two disks is not material to the claimant's combination, and if the position of the vents is likewise not material, there remains of his patent of 1879 only a chamber of fulminate in the center of the base of the cartridge, with an anvil over it, having two or more openings. Cartridges covered by this description were manufactured by the Government in 1864, and have been ever since. But there is another and material distinction between claimant's cartridge, the Government cartridges of 1864 and 1865, and the

service "cup-anvil" cartridge found in the substitution of a cup for a disk or for two disks.

Theoretically a disk has area without thickness; practically it has very little thickness and is apt to be misplaced or turned in the shell or to be loosened by the blow from the striker; on the other hand a cup from its form has greater rigidity, its wall prevents it from turning when inserted, and it can be better held, because the crimp is made at a thinner part of the walls of the shell, while the disk must be secured by a crimp close to the base where the walls are thickest. The cup also being practically the equivalent of a hollow cylinder, occupies less powder space for equal depths of cup and thickness of disk.

Upon our construction of the patent in issue the Government cartridges do not infringe the claimant's, but if we are in error as to this, still the claimant cannot recover, as the essential characteristics of his invention now found in the Government cartridge were developed by officers of the army in 1864. That is if the relative
26 position of the vents and the wall of the fulminate chamber is a material part of the claimant's patent, the Government has not infringed, this feature not appearing in its cartridges; but if this position is not material still the claimant cannot recover, as the other characteristics of his invention found in the cartridge now used by the defendants were introduced by them prior to the issue of the patent, or the filing of the application for it, and even prior to the application of 1865.

In this view of the case it is unnecessary to consider other points urged by the defense.

It is the judgment of the court that the petition be dismissed.

27 *Additional Finding of Fact.*

Filed June 7, 1898.

IX.

Counsel for the defendants also requested the court to find the following facts, which are shown by the file-wrapper and contents in the United States Patent Office in the matter of letters patent No. 212,313, issued to the claimant, but the court has refused to find them:

On December 28, 1878, the claimant filed in the United States Patent Office an application for a patent for an improvement in metallic cartridges, the specification and claims in which were as follows:

My invention relates to the peculiar construction, and combination of a circular metallic perforated plate with the circular fulminate carrier, and solid fire-tight metallic case and head in one piece, as will be hereinafter more fully set forth, and described.

In the accompanying drawing—

Fig. 1 is a longitudinal section of my improved metallic cartridge.

Fig. 2 is a plan view of the retaining disc or anvil.

Fig. 3 is a diametric section of the fulminate-carrier plate and anvil, and

Fig. 4 is a plan view of the fulminate carrier.

A, is a cylindrical metallic cartridge case or shell with solid rear end L, in one piece therewith, and both fire-tight, open only at the front end B, to be primed and loaded at this front opening.

D, is a circular disc of paper or any suitable substance, perforated through the center, for the reception of the fulminate in this perforation or chamber C.

This paper disc when charged with fulminate is placed against the bottom L, of the metallic case A; E is a circular metallic plate closely fitting inside of the case A, down upon the paper disc D, where it is held in place by contracting or pinching in the case A, which forces the plate E, down upon the disc or base of the case and makes a tight joint around the edge of the plate.

The plate E, is provided with perforations *k*, *k*, upon either side of a central line drawn through its axis as shown at *h*, *h*, figures 2 and 3, sufficient space being left between these perforations to form the bar *i*, of a breadth nearly equal to the diameter of the perforation C, immediately over which it rests; F, is the space in the cartridge which is loaded as usual with a charge of powder, and bullet of any desired weight and shape. The fulminate chamber C, may be recessed or formed in the metal of the circular plate E, with the central bar *i*, and two side perforations *k*, *k*, over it, dispensing with the paper. The central anvil affords a firm resistance to a central striker acting on the centre of the base L, and compressing the fulminate to ignite it with certainty. The two side vents diffuse the fire into the base of the charge of powder, and its instant explosion presses back the circular anvil plate, and prevents it from being blown out in the barrel, the charge being consumed from the base forward without reaction of the fire or waste of the powder.

28 Having described my invention, what I claim is,

1st. The circular plate E, constructed with central solid resisting piece *i*, and two or more side perforations *k*, *k*, substantially as described, applied within a metal case, with cylinder and rear end solid and tight, thereby requiring the insertion of the plate and charge and priming from the front, igniting the charge and remaining fire-tight in firing as described.

2nd. The circular plate E, constructed as described in combination with the circular disc D, and metal solid tight case A, substantially as shown and described.

3rd. A circular metallic tight-fitting plate perforated into a central fulminate chamber, leaving a central solid or unperforated bar over the fulminate chamber, within a solid fire-tight metal case, substantially as set forth.

The examiners rejected the first and third claims on reference to patents of A. Moffatt, 53168, Mar. 13, 1866, and W. Tibbals, 90607, May 25, 1869 (cartridges), and English patent 2906 of 1865, and the second claim upon the English patent alone.

Thereupon the claimant amended his specification by adding the following:

The distinguishing feature of my invention is the organized construction to carry into complete effect the expressed principles of operation of the fulminate of mercury or detonating powder and the powder charge. In this organization the fulminate, although the superior explosive force, is contracted into a diminished or small central chamber and fills it. (Before the application was finally allowed the words "the flange and head of the metallic case are solid, all in one piece," were added here.) This chamber at its sides or outer extreme edges communicates directly and exclusively with the powder charge, so that the explosive force of the fulminate is not allowed to expand under a larger area of the anvil plate and blow it out; but is compelled to diffuse its explosive force not in a central stream, but in a diffused body into the base of the powder charge. To effect this the central anvil piece has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer sides of this fulminate for two purposes, one is to diffuse the fire from this center most thoroughly, the other is to have an unperforated anvil over and against the fulminate, as it rests solid in its chamber, to receive the central blow of a striker, and obtain complete resistance by the anvil bar, and yet have free escapement for the explosive force, at once from beneath the anvil plate, without any chamber or space for it to expand into under the plate. This assures a certain ignition, security of the anvil plate to keep its position, and a complete combustion of the powder charge, from the base forward, as it impels the bullet out of the gun.

He also submitted in place of the three original claims the following:

Having thus described my invention what I claim as new and desire to secure by letters patent is—

The construction and arrangement of the chamber of fulminate, anvil, plate, perforations and case, with the central constructed, filled chamber of fulminate powder in contact and between the base of the case and the circular anvil plate, with central anvil bar and two or more side perforations extending from the extreme sides of the chamber of fulminate into the base of the powder charge whereby the smallest area of resistance is presented to the fulminate explosion and the fire is diffused in the base of the charge of powder and the greatest resistance is presented by the front face of the plate to the powder charge consuming the powder and securing the plate as and by the means described.

29 The examiners held that the construction described in the specification as amended involved patentable novelty, and that a specific and well-defined claim might be allowed, but not the amended claim, it being "vague, indefinite, and ambiguous." Therefore the claimant withdrew the amended claim, substituting the following, which was allowed:

In the bottom of a solid metallic-flange cartridge case or shell the combination of a circular base enclosing a central chamber of

fulminate and an anvil over the fulminate provided with two or more openings whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge substantially as described.

Counsel for the claimant objected to the above statement from the file-wrapper and contents on the ground of irrelevancy.

The court refused to find the facts contained in the above statement on the ground that "the file-wrapper and contents on an application for a patent do not constitute such facts as the court is required to find under rule 1 of the Supreme Court relating to appeals from the Court of Claims."

The court ordered the above statement, with the court's refusal to find the facts as requested, to be made a part of the record.

30 (No. 212,313.)

The United States of America to all to whom these presents shall come:

Whereas William W. Hubbell, of Washington, District of Columbia, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in cartridges, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and whereas upon due examination made the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said William W. Hubbell, his heirs or assigns, for the term of seventeen years from the eighteenth day of February, one thousand eight hundred and seventy-nine, the exclusive right to make, use, and vend the said invention throughout the United States and

31 the territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this eighteenth day of February, in the year of our Lord one thousand eight hundred and seventy-nine, and of the Independence of the United States of America the one hundred and third.

A. BELL,
Acting Secretary of the Interior.

[SEAL.]

Countersigned:
H. E. PAINE,
Commissioner of Patents.

33 UNITED STATES PATENT OFFICE.

WILLIAM W. HUBBELL, of Washington, District of Columbia.

Improvement in Cartridges.

Specification forming part of Letters Patent No. 212,313, dated February 18, 1879; application filed December 28, 1878.

To all whom it may concern:

Be it known that I, William Wheeler Hubbell, of Washington, in the county of Washington and District of Columbia, have invented an improved metallic cartridge; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to the peculiar construction and combination of a circular metallic perforated plate with the circular fulminate-carrier and solid fire-tight metallic case and head in one piece, as will be hereinafter more fully set forth and described.

(Here follows diagram marked p. 32.)

In the accompanying drawings, figure 1 is a longitudinal section of my improved metallic cartridge. Fig. 2 is a plan view of the retaining disk or anvil. Fig. 3 is a diametric section of the fulminate-carrier, plate, and anvil; and Fig. 4 is a plan view of the fulminate-carrier.

A is a cylindrical metallic cartridge case or shell, with solid rear end, L, in one piece therewith, and both fire-tight, open only at the front end, B, to be primed and loaded at this front opening.

D is a circular disk of paper or any suitable substance, perforated through the center for the reception of the fulminate in this perforation or chamber C.

This paper disk when charged with fulminate is placed against the bottom L of the metallic case A. E is a circular metallic plate closely fitting inside of the case A, down upon the paper disk D, where it is held in place by contracting or pinching in the case A, which forces the plate E down upon the disk or base of the case and makes a tight joint around the edge of the plate.

The plate E is provided with perforations *k k* upon either side of a central line drawn through its axis, as shown at *h h*, Figs. 2 and 3, sufficient space being left between these perforations to form the bar *i*, of a breadth nearly equal to the diameter of the perforation C, immediately over which it rests.

F is the space in the cartridge, which is loaded as usual with a charge of powder and bullet of any desired weight and shape. The fulminate-chamber C may be recessed or formed in the metal of the circular plate E, with the central bar *i* and two side perforations *k k* over it, dispensing with the paper. The central anvil affords a firm resistance to a central striker acting on the center of the base L, and compressing the fulminate to ignite it with certainty. The

W. W. HUBBELL.
Cartridge.

No. 212,313. Patented Feb. 18, 1879.

Fig. 1.

Fig. 2.

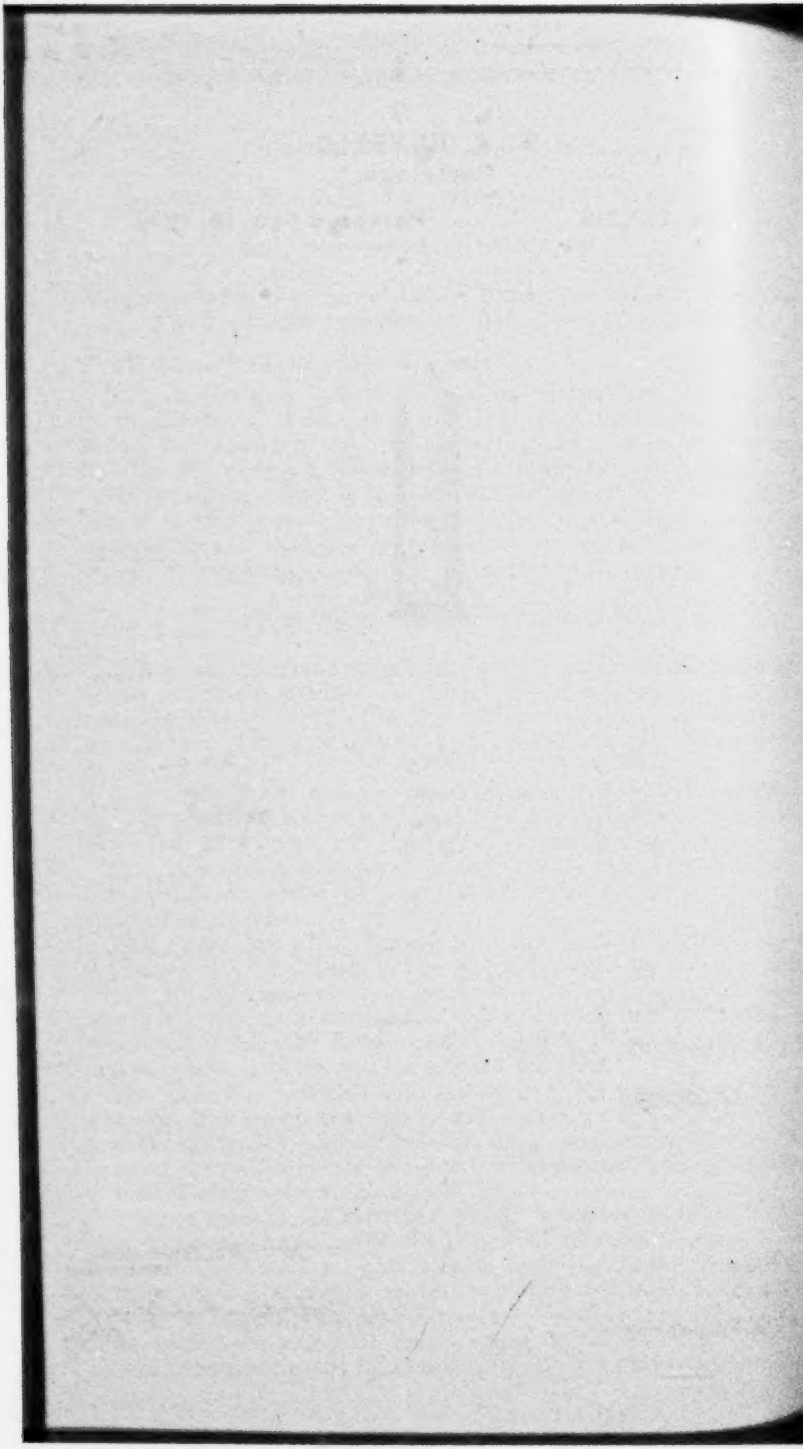
Fig. 4.

Fig. 3.

No 333
Hubbell } p. 32
vs.
U States

Attest.
Ansley.
W. F. Anderson.

Wm W. Hubbell.
Inventor.
By W. C. Abbott
Atty.



two side vents diffuse the fire into the base of the charge of powder, and its instant explosion presses back the circular anvil-plate, and prevents it from being blown out in the barrel, the charge being consumed from the base forward without reaction of the fire or waste of the powder.

The distinguishing feature of my invention is the organized construction to carry into complete effect the expressed principles of operation of the fulminate of mercury or detonating powder and the powder-charge. In this organization the fulminate, although the superior explosive force, is contracted into a diminished or small central chamber and fills it. The flange and head of the metallic case are solid, all in one piece. This chamber at its sides or outer extreme edges communicates directly and exclusively with the powder-charge, so that the explosive force of the fulminate is not allowed to expand under a larger area of the anvil-plate and blow it out, but is compelled to diffuse its explosive force, not in a central stream, but in a diffused body into the base of the powder-charge. To effect this the central anvil-piece has no central aperture, is as wide as the fulminate-filled chamber, and the perforations are at the extreme outer sides of this fulminate for two purposes. One is to diffuse the fire from this center most thoroughly. The other is to have an unperforated anvil over and against the fulminate, as it rests solid in its chamber, to receive the central blow of a striker and obtain complete resistance by the anvil-bar, and yet have free escapement for the explosive force at once from beneath the anvil-plate without any chamber or space for it to expand into under the plate. This assures a certain ignition, security of the anvil-plate to keep its position, and a complete combustion of the powder-charge, from the base forward, as it impels the bullet out of the gun.

Having thus described my invention, what I claim as new, and desire to secure by letters patent, is—

34 In the bottom of a solid metallic-flange cartridge case or shell, the combination of a circular base inclosing a central chamber of fulminate and an anvil over the fulminate provided with two or more openings, whose inner edges nearly coincide with the edges of the central chamber of fulminate in the base of the cartridge, substantially as described.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

WM. WHEELER HUBBELL.

Witnesses:
ALBIN M. LONG.
WM. G. HENDERSON.

35 *Court of Claims Journal, Vol-. 9 & 15.*

"June 1, 1885.—The court met according to adjournment.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } 13793.

Judge Davis filed the opinion of the court, and judgment was ordered to be entered as follows:

The court, on due consideration of the premises, find for the defendants, and do order, adjudge, and decree that the claimant's petition be dismissed.

The court filed findings of fact.

June 7, 1898.—The court met according to adjournment.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } 13793.

Mr. Dewees, for the claimant, presented an application for the allowance of an appeal filed August 21, 1885, and it was ordered that the appeal be allowed as prayed for.

The defendants filed request for an additional finding of facts; which was allowed."

In the Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

And now comes the claimant, by his attorney, and moves in open court for an allowance of his application for an appeal to the Supreme Court of the United States.

F. P. DEWEES.

(Filed June 7, 1898. Court of Claims.)

36 Court of Claims.

WM. WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

Claimant moves for—

1. A new trial.
2. Amendment of the findings.
3. Reversal of judgment.

W. W. HUBBELL, *Cl't.*

Assignment of errors within.
Filed Aug. 14, 1885.

A. H.

(Endorsed:) 13793. Court of Claims. W. W. Hubbell *vs.* The U. S. Order on motion for new trial. Filed Dec. 14, 1885. A. H.

Court of Claims.

WM. WHEELER HUBBELL
vs.
THE UNITED STATES.

The claimant's motion for a new trial, made *in propria persona*, is refused, but leave is granted to submit to the court for their consideration, and such action as they may find it just to take, findings II, III, and IV, amended in the form requested by claimant in his motion, and also the drawings to accompany these and other findings claimed by him in said motion as necessary to a proper understanding of the case; notice of such amended findings and
37 drawings to be given the Attorney General and opportunity allowed him, should he so desire, to be heard in opposition to their allowance.

(Docket)—Oct. 8, 1886.—Requests for findings of fact filed by claimant under order of Dec. 14, 1885.

(Endorsed:) 13793. Court of Claims. Wm. Wheeler Hubbell *vs.* The United States. Motion of claimant to amend order of court in case 13793. Filed Nov. 12, 1891. J. R. W. W. Hubbell.

Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

The claimant moves the court to amend the order in this case substantially as follows, to wit: That on the hearing of the motions pending under the order of the court for an amendment of the findings and reversal of judgment—

The claimant may read in evidence the replies of the War Department and claimant's depositions taken in case 16261, between the same parties, in relation to the "reloading cartridge," so called, and the defendant may read any new matter taken in case 16261;

It being understood here in open court that the claimant waives all claim in suit 13793 and suit 16261 on the "cup-anvil cartridge," as not coming within the combination claim of his patent, though originally, in 1842, invented by him; but claimant retains
38 his claim in suit 13793 and suit 16261 on the "reloading cartridge" as made and adopted by the defendant since "July, 1879," as embraced by the claim of his patent No. 212,313, dated February 18, 1879.

WM. WHEELER HUBBELL, *Claimant.*

Exhibit of cl't's testimony filed herewith.

Allowed, subject to defendant's objections on the argument.

W. A. R., *Ch. J.*

(Endorsed:) No. 13793. Court of Claims. Wm. Wheeler Hubbell *vs.* The United States. Appeal of claimant, subject to motion for a new trial, &c. "Let this stand without action as to allowance at present." Filed Aug. 21, 1885. A. H. W. W. Hubbell, cl't, Concord depot, Va.

Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

Claimant, owing to the manifest errors of the Court of Claims in this case in statement and omission, both of fact and of law, and of judgment of dismissal of claimant's petition, appeals from the same to the Supreme Court of the United States—

The sum in controversy being $32,368.25 in this suit.

This appeal is entered, in pursuance of the law, within 90 days and subject to claimant's motion for a new trial. Amendment of
39 the findings and reversal of judgment also entered.

August 20th, 1885.

WM. WHEELER HUBBELL, *Claimant.*

Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793 & 16261.

Claimant moves to print the motion, filed Nov. 12th, 1891, and allowed, as to cases 13793 and 16261, as therein stated (without the printed matter annexed).

Also to print the order of court on motions for new trial, &c., &c., in 13793, referred to by defendant's brief in 16261, but not printed, filed Dec. 14, 1885.

Also to print numbers 5 and 6 as certified by the Patent Office and stipulated in schedule of June 3, 1884, allowed by Chief Justice Drake, but not printed as certified (excepting the drawings,
40 which are printed).

GEO. S. BOUTWELL, *Att'y,*
By WM. W. HUBBELL, *Cl't.*

I assent to the above, provided the text of Nos. 5 and 6 are printed in full, with proper explanatory notes or marks to indicate the various changes made in the specifications and claims while the matter was before the examiners in the Patent Office.

CHARLES C. BINNEY, *Ass't Att'y.*

(Endorsed:) 13793 & 16261. Court of Claims. Wm. Wheeler Hubbell *vs.* The United States. Motion of claimant to print Nos. 5 & 6 of the record as certified and the orders of court & motion allowed. Allowed, with Mr. Binney's addition. W. A. R., Ch. J.

In the Court of Claims.

WILLIAM W. HUBBELL
vs.
THE UNITED STATES. } No. 13793, No. 16261.

Motion to Hear Argument of Motions for New Trial and Amendment of Findings of Fact in the Above-stated Cases at the Same Time.

And now comes the claimant, by his attorney, and moves the court that the motions for new trial in 16261 and amendment of findings of fact in 13793 and 16261 be heard at the same time.

GEO. S. BOUTWELL,
Attorney for Claimant.

F. P. DEWEES, *Of Counsel.*

41 Endorsed: 13793 & 16261. W. W. Hubbell *vs.* The United States. Motion that the motion for new trial in 16261 and for amended findings of fact in both cases be argued at the same time. Allowed. W. A. R., Ch. J. Filed Feb. 3, 1896. Court of Claims. F. P. Dewees, of counsel. Geo. S. Boutwell, att'y of claimant.

In the Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

Motion to Amend Findings of Fact.

And now comes the claimant, by his attorney, and moves the court to amend the findings of fact so that the same shall be in conformity with 16261.

F. P. DEWEES,
Attorney for Claimant.

(Endorsed:) 13793. William Wheeler Hubbell *vs.* The United States. Motion to amend findings of fact. Overruled. Requested findings do not conform to the rules of the Supreme Court. Filed Apr. 28, 1896. Court of Claims. F. P. Dewees, for claimant.

In the Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

Motion for Additional Findings of Fact.

42 And now comes the claimant, by his attorney, and moves the court that the additional findings of fact allowed in the

case of same claimant in 16261 and specifically set forth in claimant's motions of May 9th & 11th, 1896, be allowed in the above-stated case.

F. P. DEWEES,
Attorney for Claimant.

Argument on Motion.

There is in this case a motion not disposed of. By reference to Record, page 337, it will be seen that a motion was made by claimant and allowed by the court to submit for the consideration of the court certain amendments to the findings of fact. The following order was also made:

"That on the hearing of the motions pending under the order of the court for an amendment of the findings and reversal of judgment the claimant may read in evidence the replies of the War Department and claimant's depositions taken in case 16261, between the same parties, in relation to the 'reloading cartridge,' so called, and the defendant may read any new matter taken in case 16261."

On the 3rd day of February, 1896, a motion to argue the amendments to 13793 with 16261 was allowed and they were so argued.

The cases were argued on exactly the same facts. Additional facts were found in 16261.

If the facts as found apply to 16261, they also apply to 13793.

The claimant is not aware of any reason why the facts ap-
43 plicable to 16261 are not also applicable to 13793.

The court is therefore earnestly and respectfully requested to allow the present motion.

F. P. DEWEES,
Attorney for Claimant.

(Endorsed:) 13793. W. W. Hubbell *vs.* The United States. Motion for additional findings of fact overruled by the court. W. A. R., Ch. J. June 15, 1896. (Filed May 29, 1896. Court of Claims.)

44 In the Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

And now comes the claimant, by his attorney, and moves that additional findings of fact be found as follows:

Additional Findings of Fact.

X.

On application filed January 23, 1872, and on a division, a patent was issued for a subcaliber bullet with bullet paper-carrier (patent No. 126,058, dated April 23, 1872; specification, claims, and drawings thereof are made part of these findings); the claimant then re-

served the right to make further application for priming invention of the cartridge.

XI.

Upon an application filed December 28, 1878, a patent was issued to claimant February 18, 1879; the specifications, claims, and drawings are made part of these findings.

Previous to the fall of 1866 experience in the manufacture of metallic cartridges at the Frankford arsenal was limited to making a few of the Morse, Burnside, Maynard, and rim-fire cartridges for experimental purposes.

No order was made for the manufacture of center-fire cartridges at the Frankford arsenal by officers of the United States Army before the fall of 1866. About fifteen experimental cartridges, which proved failures, were made in 1866. All had hollow-flange cartridge cases.

45 These experiments were dropped and no more experiments of this kind were made.

Subsequent to these experiments and prior to 1868 an experimental primed metallic cartridge was made and abandoned, as shown on plate VI, ordnance memorandum No. 14, which is made part of these findings.

Prior to 1868 some of what were known as Martin's bar anvil, as illustrated in ordnance memorandum No. 14, plate X (made part of these findings), were tried. It had a hollow-flange metallic cartridge case, and was in 1868 abandoned (ordnance memorandum, text, plate XIII), and was superseded by the cup-anvil cartridge.

After 1868 numerous experiments were made to re-enforce the hollow flange to prevent it from bursting, some with single disks and some with re-enforce cups and some with the cup anvil.

It was found "that the cup anvil, as used in the service, was only an anvil having no value as a re-enforce." (Text, ordnance memorandum, plate XXX, made part hereof.)

XII.

The cup-anvil cartridge was adopted by the Government in 1868, and has since been manufactured and used by it to July, 1879, when it was abandoned and the present reloading cartridge adopted in its stead.

Owing to the juxtaposition, construction, arrangement, and combination of its parts, this cartridge was best adapted to receive with certainty of fire the blows of the striker in the Springfield gun.

The manufacture of the reloading cartridge commenced at the Frankford arsenal "in the month of July, 1879."

The solid-flange case, with a pocket or recess to reload, was known at the date of plaintiff's patent 212,313.

46 XIII.

The following exhibits and models are found as facts in the case:

Letters patent, with drawings, specifications, and claim, issued to Jabez H. Gill, numbered 220,472, on October 14, 1879.

Tracing drawing (filed April 13, 1865) to caveat of claimant.
Tracing drawing (filed April 13, 1865) with application of claimant.
Tracing drawing (filed January 17, 1872, No. 126,058) to application of claimant.
Tracing drawing (filed April 25, 1872) to application of claimant.
Tracing drawing (filed December 26, 1878) to patent No. 212,313 (Exhibit No. 1).
Official drawings, United States Army service cartridge, cup-anvil cartridge, and reloading cartridge.
Ordnance office official orders to load the reloading cartridge.
Ordnance memorandum No. 14; printed date, April 22, 1873.
Printed digest of cartridges for small arms, to Bartlett and Gallatin; date, 1878.

Models.

Cartridge in box, ordnance office, No. 2598, filed May 31, 1872, by claimant.
Exhibit A. R. L. M. Commander, No. 13793 (Q. 3, Rec., 105).
Exhibit of Government reloading cartridges.
Exhibit of Springfield rifle and army pistol.
Exhibit, Claimant's Exhibit 1858, to application of April 13, 1865.

F. P. DEWEES,
For Claimant.

47 (Endorsed:) 13793. William W. Hubbell *vs.* The United States. Motion to add additional findings of fact with brief. Overruled by the court. W. A. R., Ch. J. May 11, 1896. F. P. Dewees, for claimant.

Brief.

There is still pending in this court, undisposed of in the above case, a motion to amend findings of fact. The order made by the court on that motion may be found on pages 337, 338 of the record.
The same evidence is before the court in cases 13793 and 16261. The court has made additional findings in 16261. These addtional findings have the same application in each case. If proper to add findings in one case, it is equally so proper to do so in the other.

Respectfully,
F. P. DEWEES,
For Claimant.

(Filed May 9, 1896. Court of Claims.)

48 Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES.
} No. 13793.

Docket Extracts.

"Aug. 14, '85.—Motions for new trial, amendment of finding, reversal of judgment filed by claimant; def'ts notified.

Aug. 21, 1885.—Cl't's application for appeal filed.

Dec. 14, 1885.—See Journal 7, page 129, for order of court in this case on the motions of Aug. 14, 1885.

* * * * * * *

Oct. 8, 1886.—Requests for findings of fact filed by claimant under order of Dec. 14, 1885; def'ts notified.

* * * * * * *

Nov. 12, 1891.—Motion of claimant to amend order of court filed; def'ts notified; handed judges.

Nov. 16 (").—Motion of cl'm't to amend order of court heretofore entered as to the evidence to be used on the trial allowed, subject to objections of def'ts on the argument."

"Feb. 3, 1896.—See case 16261 for motion; that the motion for new trial in 16261 & for amended findings of facts in 16261 & 13793 be heard at the same time filed; allowed.

June 7, 1898.—Application of cl'm't for an appeal, filed August 21, 1885, allowed as prayed for.

June 7, 1898.—Request of def'ts for an additional finding of fact filed and allowed."

49 In the Court of Claims.

WILLIAM WHEELER HUBBELL
vs.
THE UNITED STATES. } No. 13793.

I, Archibald Hopkins, chief clerk of the Court of Claims, do hereby certify that the foregoing are true transcripts of the pleadings in the above-entitled cause; of the findings of fact by the court and the conclusion of law thereon; of the judgment of June 1, 1885; motions August 14, 1885, and denial of new trial December 14, 1885; application for appeal, filed August 21, 1885; order of court, filed December 14, 1885; amended order of court on motion; motion to print in 13793 and 16261 allowed; motion to hear 13793 and 16261 together allowed; motion to amend findings in 13793 overruled; motion for additional findings specified overruled; extracts from docket 13793; motion and allowance of appeal June 7, 1898.

Seal Court of Claims. In testimony whereof I have hereunto set my hand and affixed the seal of said court, at Washington, this 21st day of June, 1898.

ARCHIBALD HOPKINS,
Chief Clerk Court of Claims.

Endorsed on cover: Case No. 16,918. Court of Claims. Term No., 333. William Wheeler Hubbell, appellant, *vs.* The United States. Filed June 21st, 1898.